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Heinzman et al.

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[54] AMINO-FUNCTIONAL COMPOUNDS AS BUILDER/DISPERSANTS IN DETERGENT COMPOSITIONS

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[56] References Cited

U.S. PATENT DOCUMENTS

2,438,091	3/1948	Lynch	260/482
4,000,080	12/1976	Bartolotia et al.	252/99
4,021,359	5/1977	Schwab	252/89
4,559,159	12/1985	Denzinger et al.	252/174
4,680,339	2/1986	Fong	525/54.11

FOREIGN PATENT DOCUMENTS

61-161243	7/1986	Japan
436077	9/1975	U.S.S.R.

OTHER PUBLICATIONS

M. Pfau, Bull. Soc. France 1967, No. 4, pp. 1117-1125.
Piccrola et al. "α- and β-Amides of N-Alkyl and
Aralkyl-D,L-Aspartic Acids", Il Farmaco 24 (11),
1969, pp. 938-945.

Abshire and Berlinguet, Can. J. Chem., 44, 1966, pp.
2354-2355.

Zilkha and Bachi, J. Org. Chem., 24, 1959, pp.
1096-1098.

Laliberté and Berlinguet, Can. J. Chem., 40, 1962, pp.
163-165.

Abe et al., Yukagaku, vol. 35, pp. 17-25 and 937-944,
1986.

Tanchuk et al., Ukr. Khim. Zh. (Russ. Ed.) 43(7), 1977
pp. 733-738-Chemical Abstracts CA 87(21):168369x.

Berth et al., Angew. Chem. Internat. Edit., vol. 14,
1975, pp. 94-102.

Zini, "The Use of Acrylic Based Homo- and Copolymers as Detergent Additives", Seifen-Ole-Fette-Wachse-vol. 113, 1987, pp. 45-48 and 187-189.

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[57] ABSTRACT

Amino-functional compounds are economically prepared by reacting maleic anhydride with alcohols to form a maleate or fumarate "half-ester" which is combined with certain amines such as aspartate or glutamate, or alkanolamines, under conditions selected to avoid hydrolysis. At low molecular weights, the compounds herein are useful detergency builders; at progressively higher molecular weights within a specific range, combined builder/dispersant and typical dispersant properties emerge. Processes for preparing the compounds and useful detergent compositions containing them are described.

5 Claims, No Drawings